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Abstracts

ORGANIC FIBERS I

Vegetable fibers I 1

Decorticating fibers. Carl J. Delegard & Rudolph Kreutz. USP 2 412 445, Dec. 10, 1946.

A fiber decorticator for flax, hemp, and other bast fibers, breaks and scutches the stalks in essentially 1 operation and practically eliminates the production of tow, to produce a continuous hank ready for use in rope making without further trimming. TTD: 2-47

COMPARATIVE QUALITIES, YIELDS, AND GROSS RETURNS FOR LINT AND SEED FOR SOME UPLAND COTTONS GROWN AT FLORENCE, S. C. Crop of 1946. Anon. Pamphlet of USDA Production and Marketing Administration and Clemson Agricultural College; 1947; 9 pp. TTD: 2-47

Animal fibers I 2

Wool. Wool research in 1944. E. Sande & T. Brekke. Norwegian College of Agriculture. *Norsk Tekstiltidende 27,* 183-7 (Oct. 1946); *in Norwegian.*

A review of photomicrographic and statistical studies of wool fibers from various sources, with special attention to the presence or absence of a medullary core as a factor in the properties of wool fibers. TTD: 2-47

Hair fiber treatment. John B. Speakman (to Perm, Ltd.). USP 2 410 248, Oct. 29, 1946.

A permanent set or crimp is imparted to hair or other keratinous fibers such as wool by treatment at 50-70°C with a sulfite solution at about pH 6, whereby the disulfide, or cystine, bond is disrupted and further linkages formed simultaneously in the fiber molecules. TTD: 2-47

Animal fiber carroting. Alfred E. Hodshon & Harold H. Tucker (to John B. Stetson Co.). USP 2 411 725, Nov. 26, 1946.

The felting qualities of animal fibers (especially wool and fur) are improved, without resulting kinkiness, rendering them useful for manufacture into felt hats, by a pot carroting treatment wherein the loose fibers are immersed in a solution containing (in 1 example): H_2SO_4, chloric acid, and H_2O_2 in ethyl alcohol. TTD: 2-47

Fur carroting. Michael Mulqueen (to Pellissier, Jonas & Rivet, Inc.). Can. P. 438 658, Dec. 17, 1946.

Fur fibers are prepared for felting by treatment with an aqueous carroting solution containing HNO_3, H_2O_2, and a hydrolyzing acid in amounts respectively of: 1, 2, and 0.5 g/100 cc. TTD: 2-47

Artificial fibers I 3

Artificial fibers. New synthetic fibers constantly being developed. Anon. *Textile World 96,* No. 9, 117 (Sept. 1946).

Some newer artificial and synthetic fibers (e.g., Pe Ce, Sarelon, Polyethylene, Ardil, etc.) are tabulated and the availability of *Textile World's* "Synthetic Fiber Table" noted. TTD: 2-47

Spinning artificial filaments. Herbert O. Naumann (to North American Rayon Corp.). USP 2 410 673, Nov. 5, 1946.

In the continuous spinning of artificial threads (particularly viscose rayon) the freshly formed thread is collected, twisted, and wound, and subjected to various other aftertreatments by an improved method that facilitates the more efficient handling of the thread. TTD: 2-47

Staple fibers. Norman S. Welton (to Am. Viscose Corp.). USP 2 411 644, Nov. 26, 1946.

Staple fibers of improved cohesion, with resulting better spinnability, are produced by cutting bundles of continuous filaments with a dulled or blunted knife, thereby imparting to the ends of the fibers an irregular corrugation or crimpiness. TTD: 2-47

Rayons I 3 a

Pulp. Absorption capacity of sulfite pulps. Otto Wurz & Ottokar Swoboda. *Svensk Papperstidning 50,* 26-7 (Jan. 31, 1947); *in German.*

Measurements of capillary rise in shavings of spruce, pine and beach show that absorption capacity decreases as the age of the wood increases. Changes of absorption capacity in pulp during the course of bleaching were also measured. The height of capillary rise increased progressively from unbleached sulfite pulp through the stages of pretreatment, alkali treatment, bleaching and fiber fractionation. TTD: 2-47

Rayon. Rayon is now cheapest of major textile fibers. Wm. B. Dall, Textile World. *Textile World 96,* No. 9, 101-3 (Sept. 1946).

Advances in the price of cotton have made rayon staple the cheapest of the textile fibers (excepting the cordage fibers). Filament rayon is below a comparable cotton yarn. Further expansion in staple rayon is expected. About half of viscose filament production goes into tire cord. TTD: 2-47

Rayon pulp. Absorption of mercerizing lye by sheet pulp. Olof Samuelson. *Svensk Papperstidning 50,* 21-5 (Jan. 31, 1947); *in Swedish.*

The conventional method of measuring absorption capacity of rayon pulps for mercerizing lye by determining the time required for the lye to rise to a specified height in the pulp (e.g., 50 mm) has little value if the standard height is too great. About 10 or 15 mm would be a significant height for this test. Experiments confirm the prediction that a high hemicellulose content in the mercerizing lye will slow down the rate of absorption. Conditioning of the pulp has an active influence on rate of absorption. Pulp for these tests was conditioned at 20°C and 65% humidity. Fibers in sheet pulp are somewhat oriented in the machine direction, and rate of absorption is different longitudinally and transversely. This study may be helpful in tracing irregularities in quality of alkali cellulose made from rayon pulp. TTD: 2-47

Viscose rayon. Walter J. Gundelfinger. USP 2 411 774, Nov. 26, 1946.

In the production of artificial filaments, particularly viscose rayon, a uniform yarn is produced by an improved process that reduces or eliminates overripening and consequent clogging of the spinneret orifices and filters. TTD: 2-47

Rayon collection. Arthur L. Jackson & John K. Whisnant (to Am. Enka Corp.). USP 2 412 403, Dec. 10, 1946.

In the manufacture of viscose rayon, after a spinning bucket has been filled, the continuously extruded thread is mechanically severed and directed by an air stream to a waste collector and then when a new spinning bucket is in place it is redirected into it for winding a new package. TTD: 2-47

Viscose rayon. Rudolph S. Bley (to North American Rayon Corp.). Can. P. 438 102-7, Nov. 19, 1946.

In manufacturing viscose yarn from regenerated cellulose, the viscose solution is extruded into an acid spinning bath to coagulate the filaments. To inhibit incrustations on the spinnerets, the spinning baths contain a surface-active agent consisting of sugar ethers that contain a phosphonium, arsonium, stibonium, sulfonium,

or nitrogen compound having 12-16 C atoms. TTD: 2-47

Cellulose acetate. Robt. M. Hoffman (to Can. Industries, Ltd.). Can. P. 438 610, Dec. 17, 1946.

Cellulose acetate filaments are produced in a dry-spinning process from an acetone solution containing 25-32 wt.% acetate, heated to about 50-70°C, by extruding the filaments through orifices of 0.10-0.30 mm in diameter into an atmosphere at about 85-115°C. TTD: 2-47

Protein fibers I 3 b

Caseins. Know your caseins. Geo. H. Brother. *Plastics 5,* No. 4, 52-3, 94-6 (Oct. 1946).

A brief survey of the chemical structure and preparation of casein. TTD: 2-47

Protein fiber. R. Singer. Swed. P. 117 405, Dec. 29, 1942; *in Swedish.*

In dry-spinning protein fibers the filament emerging from the spinneret is stretched at a temperature at which spinning is still possible in a humid atmosphere. Toward the end of the spinning tube the filament encounters a cold gas current, and at the outlet it is exposed to a current of dry gas. TTD: 2-47

Protein fiber. R. Singer. Swed. P. 117 406, June 12, 1944; *in Swedish.*

The tensile strength of protein fibers is increased in the dry spinning process by treating the wet filaments, after hardening and alkali removal, with solutions of metal salts which form hydroxides in presence of alkali. TTD: 2-47

Synthetic fibers I 4

Vinyl resin fiber. Halsey B. Stevenson (to E. I. du Pont de Nemours & Co.). USP 2 411 474, Nov. 19, 1946.

Polyethylene-vinyl acetate filaments, having improved dye receptivity, increased elongation, and better resistance to boiling water, are produced by drawing in a steam atmosphere at 90-100°C and further heat-treating in steam at about 103°C under slight tension. TTD: 2-47

Nylon bristles. Wm. R. McClellan (to E. I. du Pont de Nemours & Co.). USP 2 412 054, Dec. 3, 1946.

Nylon monofils are modified by impregnation with a nonextractable phenolic resin to improve their resistance to heat and light degradation and increase their stiffness, especially for use in paint brush bristles. TTD: 2-47

Polythene threads. H. G. Ingersoll (to I. E. du Pont de Nemours & Co.). Australian P. 122 876, Dec. 5, 1946.

Oriented polythene threads are heat-treated at a tem-

perature below the melting point of the solid to effect setting and reduce shrinkage. TTD: 2-47

Nylon coils. Howard J. Doell (to Can. Industries, Ltd.). Can. P. 438 030, Nov. 19, 1946.

A nylon monofil under tension is twisted upon itself, one end being held, to form a coil which is then subjected to a setting treatment and the tension released. TTD: 2-47

Fiber applications I 5

Fibrous insulating bat. Julian H. Nootens (to U. S. Gypsum Co.). USP 2 409 951, Oct. 22, 1946.

Insulating bat for use in the heat insulation of buildings, generally to be placed between studdings in the walls, is made in a reenforced corrugated or extensible form such that it may be adapted to insulating spaces of varying widths without further cutting and adjustment. Any of various types of fibrous material may be used in these bats and include: mineral wool, glass wool, cotton, balsam pulp, etc. TTD: 2-47

Vegetable fiber sheets. Indian Jute Mills Assn. & Angelo Bros., Ltd. Australian P. 122 807, Nov. 28, 1946.

Two or more sheets of vegetable fibers, impregnated with a thermosetting resin, are bonded together under heat and pressure to form a material of use in the production of boxes, insulating boards, etc. TTD:2-47

Fiber processing I 6

Drying staple fibers. Herman C. R. Folmer (to Am. Viscose Corp.). USP 2 409 747, Oct. 22, 1946.

Wet staple fibers are quickly dried (in about 5 sec.) by subjecting them to a current of hot air at about 200-600°F, a permanent, natural crimp being imparted to the fibers by allowing them freely to shrink and twist. TTD: 2-47

Casein predyeing treatment. John E. Conrad (to Collins & Aikman Corp.). USP 2 412 125-6, Dec. 3, 1946.

A predyeing treatment for casein fibers to render them more amenable to blending and dyeing with wool and mohair or cotton fibers in a union bath, consists essentially of impregnation by a 2-bath process whereby tin tannate is incorporated in the fibers. Fibers so treated may be blended and evenly dyed with acid, substantive, or vat dyes by either pad or kettle methods. These fiber blends are particularly for use in the manufacture of automobile upholstery pile fabrics. TTD: 2-47

INORGANIC FIBERS II

Glass sliver. Jas. R. McMillin & Stanley H. Lake (to Owens-Corning Fiberglas Corp.). USP 2 411 326, Nov. 19, 1946.

A glass sliver of increased tensile strength is formed by drawing a continuous strand (preferably glass), to which an adhesive may be applied, through a mass of tangled glass fibers as they are deposited on the surface of a rotating drum. TTD: 2-47

Mineral wool. C. D. Richardson (to Insulwool Products Proprietary, Ltd.). Australian P. 122 907, Dec. 12, 1946.

Masses of mineral wool fibers, impregnated with a partially polymerized synthetic resin, are cut into slabs or molded and kiln-dried under pressure. TTD: 2-47

Glass fibers. G. Slayter (to Owens-Corning Fiberglass Corp. through A. S. Cave). Australian P. 122 938, Dec. 12, 1946.

Glass fibers that may be used in spiral mats, which in turn may be split to form strands or bats, are produced by apparatus having a rotating melting head that delivers attenuated streams of molten glass to a cylindrical wire mesh mounted on a rotatable suction box. TTD: 2-47

FIBER TO YARN III

Fiber preparation III 1

Woolen card clothing. Clothing on woolen cards is key to good yarn. W. J. Crofts. *Textile World 96*, No. 9, 131, 204, 206, 209, 212 (Sept. 1946).

An efficiency of 85% (on the basis of 100% for new clothing) should be maintained for card clothing as the best card is ineffective without good clothing. TTD: 2-47

Sliver lap. Thos. S. Ramsdell. USP 2 409 898, Oct. 22, 1946.

A heavy sliver lap (up to 2000 or more grains per running yard), of use in making cotton fabrics without spinning and weaving, or as a base for making artificial leather, is formed by feeding an ordinary web (about 60-75 grains per running yard) from a doffer to a condenser moving at a slower rate than that at which the web is fed to it. After stripping, such condensed sliver lap may, if desired, be compacted by passing through calender rolls. TTD: 2-47

Worsted roving. Rene J. de Lathauwer. USP 2 410 020, Oct. 29, 1946.

Worsted roving, suitable for spinning into yarn is uniformly and evenly drafted by an improved method that appreciably reduces the number of drawings (4, instead of 7 or more) and condensings, and packagings (2 each). An essential feature of the process consists in subjecting each of 2 slivers successively to simultaneous drawings and slip-draft combing, each succeeding drawing and combing being less strenuous than the preceding. TTD: 2-47

Drafting. Jos. B. Rumsey (to E. I. du Pont de Nemours & Co.). USP 2 410 307, Oct. 29, 1946.

In apparatus for continuously converting tow to top filaments are fed to a gill drafting frame where knives are arranged on the faller bars in a staggered relationship for cutting into predetermined lengths. TTD: 2-47

Comber. Arthur Job (to Sils Corp.). USP 2 410 738, Nov. 5, 1946.

A continuous, uniform sliver (of medium length fibers such as wool, flax, hemp, silk-waste, etc.) is produced on a comber of improved design that requires little skilled supervision. TTD: 2-47

Drawing frame. Elvin B. Robinson (1/3 each to Clarence J. Costner & Arnold W. Kincaid). USP 2 412 357, Dec. 10, 1946.

An improved type of ball or roller bearing for the top and bottom rolls of a drawing frame appreciably reduces wear and allows speeding up of the frame without undue vibration. TTD: 2-47

Blends III 2

Blends for fabrics. Synthetics broaden variety of fabrics. T. R. Hart, N. C. State College, School of Textiles. *Textile World 96,* No. 9, 109-10 (Sept. 1946).

Blends particularly with nylon (for wrinkle resistance) increase the possibilities of novel effects in fabric design. TTD: 2-47

Three-fiber blends. Synthetics predominate in three-fiber blends. C. Mallard Bowden, Textile World. *Textile World 96,* No. 9, 104-7 (Sept. 1946).

A great variety of multiple fiber blends, mainly three-fiber, produced on cotton-system equipment, is briefly discussed. Alternate procedures for producing 6 different three-fiber blends are tabulated. TTD: 2-47

Wool-rayon blends. Tinting and fly plague Bradford spinners using rayon. François E. Cleyn, Textile World. *Textile World 96,* No. 9, 108 (Sept. 1946).

Wool and rayon are blended on the Bradford system by a spindle-gill-box operation; in blending rayon and wool on cotton machinery no gilling operation is used. With tinted rayon tops unavailable, the wool must be tinted. Control of viscose fly is always a problem where partitioning is difficult. TTD: 2-47

Fiber blender. Oren W. Greene, Robt. W. Twitty & Therman L. Richie (to Marion Mfg. Co.). USP 2 412 506, Dec. 10, 1946.

In a fiber blending machine the constituent fibers, going to make up a particular blend, are collected in individual

containers, feeders to which are automatically stopped when a predetermined amount has been collected; and the various batches are retained in their individual containers until such time as the predetermined amounts of each fiber have been collected, when they are then dumped together into the blender for mixing. TTD: 2-47

Kapok-rayon yarn blend. Alfred Michel (to Société Files Textiler & R. P. Pescara). Can. P. 438 139, Nov. 19, 1946.

A blended spun yarn contains 70-80 wt.% kapok fibers and 30-20 wt.% rayon. TTD: 2-47

Spinning III 3

Spinning. It pays to spin for quality. C. Mallard Bowden, Textile World. *Textile World 96,* No. 9, 143, 145, 147, 212, 216 (Sept. 1946).

A mill of 51,000 spindles averages about 1800 end-breaks an hour. Maintenance of spinning quality requires good teaching of new, and also of old, employees; a mock-up, or sample, spindle has been found useful in explaining the technique of getting up ends. TTD:2-47

Spinning efficiency. Efficiency in ring spinning and doubling. Anon. *Textile Recorder 64,* No. 763, 61, 63 (Oct. 1946).

Ten of the most important factors determining the most efficient speed for ring travelers are outlined and discussed. TTD: 2-47

Spinning roll settings. Correct roll settings improve yarn quality. Seth Carter. *Textile World 96,* No. 9, 121, 123, 200, 202, 204 (Sept. 1946).

Warp yarn strength shows a consistent loss of 6-15% in break factors by comparison with previous years' standards. To avoid setting rolls too close it is recommended that classified staple length rather than average length be used. Cockled yarn, fiber slippage, and breakage often result from too close settings. TTD: 2-47

Twist in yarns. Twist of cotton yarns in practice. Torsax. *Textielwezen 2,* 645-9 (Dec. 1946); *in Dutch.*

Charts are presented for relating twist coefficient C to yarn number. The Baer equation for calculating twist is preferred over the Koechlin and Staub equations. A table of twist coefficients and staple length is presented for Egyptian, American, African and Indian cottons. TTD: 2-47

Yarn twister. Otha A. Hitt (to E. I. du Pont de Nemours & Co.). USP 2 406 768, Sept. 3, 1946.

An improved bobbin cap lock securing the cap to the spindle on a twisting machine does not loosen in high-

speed rotation, may be easily released, and largely reduces hazards to operators from flying bobbin caps.
TTD: 2-47

Twister traveler. Philip C. Wentworth (to Nat'l Ring Traveler Co.). USP 2 409 918, Oct. 22, 1946.

An improved twisting traveler has twin oval bearing surfaces which render it self-lubricating, thus reducing wear, increasing the life of both traveler and ring, and eliminating plating. A more uniform twist and greater strength are imparted to the yarn. TTD: 2-47

Spinning spindle. Harold A. Boyd. USP 2 410 705, Nov. 5, 1946.

On a spinning frame intermediate whorls are introduced between the main driving drum and the spinning spindles which are driven by primary tapes from the main drum and in turn drive the secondary tapes on the spindles thus assuring a heavier, longer-lasting primary tape, and permitting as a secondary tape an endless cord that may be slipped on the whorl, not sewn in place.
TTD: 2-47

Twister stop motion. Virgil A. Burnham (to Saco-Lowell Shops). USP 2 411 126, Nov. 12, 1946.

An improved stop motion device for a 2 for 1 twister is magnetically operated and adds materially to the safe operation of the machine. TTD: 2-47

Twister spindle break. Virgil A. Burnham (to Saco-Lowell Shops). USP 2 411 127, Nov. 12, 1946.

An improved break to stop individual spindles on twister frames is operable by hand or knee, thus leaving the operator relatively freer for removing bobbins, piecing up ends, and similar duties. TTD: 2-47

Drive roll coupling. Harley O. Shade. USP 2 412 013, Dec. 3, 1946.

An improved coupling or connector for drive rolls (such as on spinning machines) gives a positive connection between the rolls and eliminates the use of the long shaft. TTD: 2-47

Twister spindle. Eliot G. Crawford (to Wm. Triant). USP 2 412 129, Dec. 3, 1946.

A spindle of improved construction, especially for use on twisters, has heat radiating fins which, when the spindle is rotated, create a draft to exert a cooling effect on the spindle case, thus reducing heat generation and consequent wear on the spindle. TTD: 2-47

Bobbin doffing. Jas. H. Daughdrill & Robt. F. Jessen (to Callaway Mills). USP 2 412 444, Dec. 10, 1946.

A bobbin doffing and donning device, for spinning

frames particularly but also quillers and the like, is manually operable by a relatively unskilled worker and may be used on 1 spindle or an entire side of a frame.
TTD: 2-47

Wet spinning cotton. Benj. L. Whittier & Willis E. Johnson (to Mt. Vernon-Woodberry Mills, Inc.). USP 2 412 641, Dec. 17, 1946.

A yarn of improved appearance and increased strength is produced on a ring spinning frame by a wet spinning process whereby cotton roving is drawn while dry but moisture is applied as it passes between the front drawing rolls, the twist being imparted thereafter while the yarn is thus moistened. TTD: 2-47

Spinning roll. Abraham L. Freedlander (to Dayton Rubber Mfg. Co.). Can. P. 438 477, Dec. 10, 1946.

An improved covering for the top roll of a spinning frame consists essentially of methyl rubber and a filler in about equal proportions, which, after plasticizing and extruding, is vulcanized to a metal core. TTD: 2-47

Winding III 4

Automatic pirn winders. Manufacture of fully automatic pirn winders. Anon. *Textile Recorder 64,* No. 762, 59-60 (Sept. 1946); *Textile Mfr. 72,* 531 (Oct. 1946).

The Muschamp Taylor, Ltd's. high speed super-cop winder, described and illustrated, contains 2-3 times as much weft as an ordinary pirn and winds most types of yarns at a speed of 500 ft/min. TTD: 2-47

Identifying winding bobbins. Gustaf S. Beckman (to Universal Winding Co.). USP 2 411 242-3, Nov. 19, 1946.

Identifying marks are applied to bobbins on a winding machine, either before or after they are doffed, by means of an automatic attachment using different colors of fugitive inks or dyes, chalks or crayons. Identification aids in preventing mixed counts and in correcting defects by tracing the processing steps of the yarn. TTD: 2-47

Reel. Edw. W. Powell (to Hubbard Spool Co.). USP 2 411 937, Dec. 3, 1946.

A reel or beam, such as for winding yarns, threads, wire, cord, etc., is formed of light gage sheet metal with heads of reinforced sheet metal discs strengthened by reinforcing ribbing such that they will withstand a spreading strain, as from winding warp strands for delivery to looms. TTD: 2-47

Rayon cone inspection. Wm. M. Alling (to Industrial Rayon Corp.). USP 2 412 381, Dec. 10, 1946.

In winding rayon from a supply package onto cones an

improved method of visually inspecting the thread detects any imperfections such as lumps, or slubs, or broken filaments so as to allow withdrawal of such thread and disposal as second quality, inferior, or waste thread. TTD: 2-47

Yarn processing III 5

Yarn drying. Dielectric heating cuts twist-setting and drying time. C. N. Batsel, Radio Corp. of Am. *Textile World 96,* No. 9, 139, 141, 216, 220, 224, 227 (Sept. 1946).

Because of its uniform heating or drying ability HF power is most advantageous when used to heat material in packages. Generators now available range in size from 1 kw to 125 kw in single units. Possible textile applications include drying dyed cotton yarns and rayon yarn cakes, setting twist of rayon or wool yarns, and drying sized nylon. Costs of dielectric heating are easily figured, examples being given. TTD: 2-47

Rayon yarn conditioning. Berkeley L. Hathorne & Robt. W. Seem (to Crepe de Chine, Inc.). USP 2 411 132, Nov. 12, 1946.

Rayon yarn is subjected to overtwisting in one direction, reverse twisting, and twist-setting to reduce or control the torsional forces (i.e., curling, kinking, flying, etc.), thus rendering the yarn more amenable to subsequent operations, such as coning, quilling, knitting or weaving, etc. TTD: 2-47

Steam-treating yarn. Horace J. Hegan & Edwin H. Sharples (to Courtaulds, Ltd.). USP 2 411 429, Nov. 19, 1946.

Cellulosic yarn (particularly viscose or cuprammonium but also cotton) is pretreated in hot water at above 100°C in order to stabilize the dyeing affinity of the yarn against the effects of uneven steaming. TTD: 2-47

Yarn products III 6

Mop yarns. Walter S. Briggs. USP 2 409 660, Oct. 22, 1946.

A twisted yarn, particularly for use in wet mops or swabs, consists of a sponge cellulose hydrate covering closely bonded to a core yarn of cotton or other fibers. Mops made from such yarns have an increased life and greater water absorptivity, showing little tendency to fray, untwist, or become entangled. TTD: 2-47

Coated nylon cord. Theodore R. Ten Broeck (to Wingfoot Corp.). USP 2 410 792, Nov, 5, 1946.

Nylon cord, particularly for use in tires, is rubber-coated by the use of an improved adhesive composition containing a synthetic rubber latex, casein, and phenol. Tires with such nylon cords show greatly improved puncture resistance over tires with rayon or cotton cords. TTD: 2-47

YARN TO FABRIC IV

Yarn preparation IV 1

Cotton beamer. New high-speed cotton beaming machine. Anon. *Textile Recorder 64,* No. 763, 54-5; *Textile Mfr. 72,* 524-5 (Oct. 1946).

An electrically controlled beamer (Allen) for production of cotton warps is described and illustrated. TTD: 2-47

High speed warping. High speed warping of woolen and worsted yarns. F. H. Brook. *Textile Mfr. 72,* 529-30 (Oct. 1946).

An illustrated description of the Whitin warping machine. (Cf. TTD: 7-46, p. 324.) TTD: 2-47

Warp sizing nylon. Vernal R. Hardy & Walter R. Haefele (to E. I. du Pont de Nemours & Co.). USP 2 411 322, Nov. 19, 1946.

An improved slasher size for nylon yarns that renders them more amenable to weaving and subsequent processes consists essentially of polyvinyl alcohol combined with an alkylol urea-formaldehyde resin. Besides being more economical than the single-end sizing method this improved sizing composition reduces the number of end-breaks (averaging about 1 every 1/2 yard of fabric woven) commonly encountered with single-end sizing. TTD: 2-47

Weaving IV 2

Jacquard shedding. Jute and linen weaving practice—VII. S. A. G. Caldwell. *Textile Mfr. 72,* 515-16, 519 (Oct. 1946).

In weaving high quality damasks, or other fabrics of intricate designs, Verdol and Vincenzi jacquard machines are finding increasing use with linen manufacturers; and the operation of these 2 machines is described and illustrated. TTD: 2-47

TITAN AUTOMATIC WARP TYING MACHINE. Anon. Folder of Titan Company, Copenhagen, Denmark; 4 pp. TTD: 2-47

Looms IV 2 a

Loom braces. E-model loom speed increased by new braces. Anon. *Textile World 96,* No. 9, 158 (Sept. 1946).

A top girt, in 3 sections, for use on Draper E-model looms, is designed to increase speed on older types. TTD: 2-47

Shuttle guard. Swain shuttle guard. Anon. *Textile Recorder 64,* No. 763, 55 (Oct. 1946).

A shuttle guard (W. B. White & Sons, Ltd.) to protect the operator from a flying shuttle is briefly described and illustrated. TTD: 2-47

Weaving. Circular loom. Anon. *Textielwezen 2,* 641-2 (Dec. 1946); *in French.*

The maximum theoretical output of a circular loom is expressed by the equation P = LTF, where P is production in meters per second, L is width at the reed, T is the reciprocal of the time required for shed changing, and F is a correction factor depending on the construction of the loom but preferably not smaller in numerical value than about 0.67. The electric system of providing shuttle impulses has its merits, but suffers from the defect that a loom utilizing this principle has a low value of F. TTD: 2-47

Weaving. Mechanical study of drapery looms. A. van Cauwenberghe. *Textielwezen 2,* 603-6; 651-3 (Nov., Dec., 1946)); *in Dutch.*

Illustrated description of loom parts in the Snoeck, Schönherr and Houget looms for making drapery fabrics. TTD: 2-47

Loom heddle bars. David E. Buice, Sr. USP 2 409 735, Oct. 22, 1946.

Heddle bars are retained in their frames by an improved locking element, easily replaced when worn, that consists essentially of a removable locking pin. TTD: 2-47

Loom shuttle. John J. Kaufmann, Jr. (to Steel Heddle Mfg. Co.). USP 2 410 383, Oct. 29, 1946.

An automatically threading shuttle has an improved tensioning device that allows the filling yarn to pass down to the entrance of the threading block and reduces the likelihood of unthreading because of overthrows or loops. TTD: 2-47

Loom bobbin receiver. Richard G. Turner (to Crompton & Knowles Loom Works). USP 2 411 068-9, Nov. 12, 1946.

On a weft replenishing loom a flexible bag, reinforced at the corners to prevent sagging during emptying, receives the spent bobbins as they are expelled from the lay. This bag is cheaper in construction and more readily handled than the metal can commonly used. TTD: 2-47

Loom bobbin receiver. Gabriel C. Beatrice (to Crompton & Knowles Loom Works). USP 2 411 353-4, Nov. 19, 1946.

On a weft replenishing loom a bobbin collector or receiver, mounted on a pivoted carrier by a detachable connection, receives the spent bobbins and is readily removable to permit emptying. TTD: 2-47

Loom bobbin receiver. Richard G. Turner (to Crompton & Knowles Loom Works). USP 2 411 643, Nov. 26, 1946.

A bobbin receiver for a weft replenishing loom consists essentially of a cloth bag with an extensible elastic bottom which is gradually depressed as the bobbins accumulate and returns to normal position upon emptying. TTD: 2-47

Loom bobbin receiver. Walter H. Wakefield (to Crompton & Knowles Loom Works). USP 2 411 947-9, Dec. 3, 1946.

On a weft replenishing loom an improved bobbin receiver consists essentially of a cloth bag having drawn cords to facilitate emptying, the bag being attached to a rigid frame which is pivotally mounted so that it can be moved forward and upward as necessary. TTD: 2-47

Creel. Saml. P. Parker (to Callaway Mills). USP 2 412 353, Dec. 10, 1946.

An improved creel for a disc, or card, loom wherein yarns controlled by discs are twisted together into cables has readily accessible mountings for warp yarn supplies which are so rotated that the cable formed has a twist equal and opposite to the back twist developed by the discs. Cables, as they come from the creel, pass to a single tension device, thus assuring uniform tension eliminating individual tensioning devices formerly used for each warp yarn suply. TTD: 2-47

Disc loom. Saml. P. Parker (to Callaway Mills). USP 2 412 354-5, Dec. 10, 1946.

On a disc loom an improved shedding disc assembly allows relatively easy changing of discs, as required, at an appreciable saving in time. TTD: 2-47

Loom pullover shaft. Victor F. Sepavich (to Crompton & Knowles Loom Works). USP 2 412 477, Dec. 10, 1946.

On an Axminster loom, instead of a pawl and ratchet mechanism, a motor drive geared to the pullover shaft operates the shaft, alternately turning and electromagnetically locking the shaft through the use of a wound rotor. TTD: 2-47

Weft beat-up. Derrick W. Shimwell. Can. P. 438 309-10, Dec. 3, 1946.

The weft beat-up mechanism on a loom has a beat-up comb capable of reciprocatory and pivotal movement mounted between two frame supports, one on each side of the loom. Beat-up is effected with relatively rapid upward and downward movement of the comb. TTD: 2-47

Loom chain drive. Frederick W. Watson (to Toronto Carpet Mfg. Co., Ltd.). Can. P. 438 676, Dec. 17, 1946.

An Axminster carpet loom has an improved overhead chain drive operable in either direction TTD: 2-47

Weaving. C. Christiansen & G. O. K. Rüsch. Swed. P. 117 380, Aug. 7, 1941; *in Swedish.*

A weight for maintaining tension on the warp yarns on circular looms for weaving hose or tubing is suspended by a hook bent at an angle of 180° (with rounded bend) so that the full load is applied directly to the warp yarn. TTD: 2-47

Control devices — IV 2 b

Loom bobbin cleaner. Mordale patent automatic loom-motion bobbin cleaner. Anon. *Textile Mfr. 72,* 527-8 (Oct. 1946).

An automatic cleaner of weft bobbins as they are discharged from the loom, which is attached to the loom, is described and illustrated. The attachment is adaptable to practically any automatic bobbin-changing loom on any type of weft. TTD: 2-47

Loom stop motion. Jonas F. Koskela. USP 2 409 766, Oct. 22, 1946.

An improved stop motion that stops the loom when a harness wire or strap breaks consists essentially of a coiled make and break wire element mounted through insulators or an adapter rod which in turn is mounted between the parallel frame bars of the loom. TTD: 2-47

Loom pattern lever. Wm. A. Blanchard (to Crompton & Knowles Loom Works). USP 2 409 973, Oct. 22, 1946.

An improved pattern mechanism lever (particularly of the vibrator type used in the Knowles head) instead of being of solid metal construction (generally malleable iron) consists essentially of top and bottom rails with a sinuous reinforcing wire between and thus is comparatively lighter in weight. TTD: 2-47

Stop motion. Victor F. Sepavich (to Crompton & Knowles Loom Works). USP 2 410 687, Nov. 5, 1946.

On a weft replenishing loom a misplaced shuttle actuates a stop motion through an electronic tube whose grid is controlled by the switch on the shuttle position feeler, the current in the grid circuit being very small and insufficient to ignite any lint which may collect on the switch. TTD: 2-47

Fabric construction — IV 2 c

Rayon ties. Rayon tie fabrics—problems in their construction. Anon. *Silk & Rayon 20,* 1108, 1110-11 (Sept. 1946).

Rayon ties are best made on Jacquard looms. Practical

suggestions are given for meeting problems arising in beaming, looming, weaving, printing, and finishing. TTD: 2-47

Cheese bandages. Lawrence A. Savage (to Kendall Co.). USP 2 410 394, Oct. 29, 1946.

A woven fabric, particularly for cheese bandages, is produced on a loom having skew rods placed at each end which operate in timed relation with the pattern mechanism to cause the warp to be skewed first in one direction and then in the other. TTD: 2-47

Camouflage nets. Jos. E. Arena (rights to governmental use granted). USP 2 411 512, Nov. 26, 1946.

Open-mesh, cross-strand fabrics, especially camouflage nets, are interwoven with narrow strips or garlands of varying materials (e.g., chicken feathers, steel wool, Spanish moss, glass wool, etc.), preferably subsequent to manufacture, by a semi-automatic weaving device. TTD: 2-47

Foundations of fabric structure. John H. Strong. Nat'l Trade Press, Ltd., London 1946; 241 pp.; price 21s.

Reviewed in *Norsk Tekstiltidende 27,* 224 (Dec. 1946). TTD: 2-47

Knitting — IV 3

Knitting. Weight control in knitting is vital in quality and cost. Alfred H. Wesslen, Ware Knitters, Inc. *Textile World 96,* No. 9, 133, 135 (Sept. 1946).

A standard knit construction should be determined by a series of carefully controlled samples run by the boss knitter and the plant engineer in cooperation. Samples thus begun in the knitting room are best checked at the finishing machine. TTD: 2-47

Knitting machines — IV 3 a

Tricot knitting. II. Circular knitting machines. Alf Lindström, Lennings Textiltekniska Institut. *Tids. Textilteknik 3,* 170-8 (Oct. 1945).

The construction and operation of circular knitting machines are described in detail in the light of numbered and lettered drawings and photographs. Special attention is given to an automatic rib machine. TTD: 2-47

Knitting machine. John E. Lynam (to Wm. Cotton, Ltd.). USP 2 410 668, Nov. 5, 1946.

A straight bar knitting machine, particularly a Cotton's Patent, has a fluid-operated friction coupling (hydraulic or pneumatic clutch) to control a yarn carrier or carrier rod having a variable amplitude. TTD: 2-47

Sweater knitting. Frederick W. Brown. USP 2 410 710, Nov. 5, 1946.

By an improved method of knitting sweaters on a links-and-links knitting machine, while the body and tail portions of the sweater are knit according to usual practice with the tail portion tighter than the body, the bands are knitted upon these portions at the same tension (or looser for a 2-ply band). This method eliminates an objectionable tightly knit tail. TTD: 2-47

Knitting needle sliders. Oscar Fregeolle (to Hemphill Co.). USP 2 411 418, Nov. 19, 1946.

On a circular, independent needle knitting machine, in transferring needles, as from upper to lower cylinders, such as in changing from rib to plain knitting, each cylinder slider, under compression from its own retaining band is quickly returned to its normal position within the slot independent of the action of another slider. TTD: 2-47

Knitting machine needles. Ivan W. Grothey (to Scott & Williams, Inc.). USP 2 411 422, Nov. 19, 1946.

On a circular, independent needle knitting machine independent shogging movements for groups of wrap yarn carriers are provided for producing embroidery designs. TTD: 2-47

Knitting machines. Oscar Fregeolle (to Hemphill Co.). USP 2 411 719, Nov. 26, 1946.

An improved wrap mechanism on a circular independent needle knitting machine allows moving the wrap horn into and out of operating position through the eccentric and concentric motion of the wrap spindle. TTD: 2-47

Knitting machine needles. Paul W. Bristow (to Scott & Williams, Inc.). USP 2 412 248, Dec. 10, 1946.

By an improved means of needle transfer on knitting machines, such that no needle is released by both its sliders, tuck and float stitches may be produced in links-and-links fabric, particularly hosiery. TTD: 2-47

Circular knitting machine. Henry H. Holmes & Alfred P. Saunders (to Wildt & Co., Ltd.). USP 2 412 267, Dec. 10, 1946.

Knitting rib or curl stitches on a circular knitting machine is facilitated by an improved means of holding down the old loops or stitches as formed by the proper needles while the same needles draw the yarn for and knock over the suceeding new loops or stitches. TTD: 2-47

Control devices — IV 3 b

Knitting yarn feed. Ezekiel Killian (1/4 each to E. Louis, Saml. R. & Myer E. Kotzen & Howard C. Mohn Hosiery Co., Inc.). USP 2 406 775, Sept. 3, 1946.

On circular knitting machines, particularly of the Banner type, for producing seamless hosiery an improved yarn feed comprises a number of separate but cooperating elements that may be selectively positioned by the yarn to effect terrying or plating. TTD: 2-47

Knitting control. DeHart G. Scrantom (to Western Electric Co., Inc.). USP 2 409 961, Oct. 22, 1946.

An improved electrically controlled stop motion for a knitting machine producing a knitted covering material, such as for electrical conductors, is actuated by a yarn or thread break, breaking of a needle, or dropping of a stitch. TTD: 2-47

Stop motion. Alfred Crawford (to Crawford Mfg. Co.). USP 2 410 718, Nov. 5, 1946.

The switch mechanism (both top and lower switches) of a stop motion on a knitting machine (particularly Crawford) is completely enclosed in dustproof casings, thus preventing entrance of lint and fouling of the switch. These switches may be assembled in advance, and adjusted individually for use in new machines or as replacements. TTD: 2-47

Loop cutter. John N. Gilbreath. USP 2 411 259, Nov. 19, 1946.

In a continuous knitting process on a circular knitting machine the loosely knitted shed-off strips or bands joining knitted units (e.g., sock tops) are automatically clipped at a selected loop, thus permitting easy separation. TTD: 2-47

Knitting machine control. Robt. H. Lawson (to Scott & Williams, Inc.). USP 2 411 795, Nov. 26, 1946.

On hosiery knitting machines an improved racking mechanism for a trick wheel, or pattern drum, more positive in action than the usual ratchet and pawl mechanisms, prevents overrunning, thus eliminating the need for friction on the drum. TTD: 2-47

Fabric construction — IV 3 c

Hosiery knitting. Alfred L. Wagler (to Wm. F. Geibel). USP 2 411 175, Nov. 19, 1946.

Single ply welts for silk hosiery, connected with the stocking leg above the knee, are knitted on a warp knitting machine (preferably a Raschel) from inelastic yarns such as silk, rayon, cotton, etc., and elastic threads (i.e., rubber or latex wrapped with cotton or silk). Hosiery so constructed, with 2-way stretch and 1-way stretch in certain portions of the fabric, better absorbs the stresses of knee bending. TTD: 2-47

Hosiery knitting. Harry C. Mills USP 2 411 452, Nov. 19, 1946.

In knitting stockings on tubular knitting machines an improved loop transfer device, particularly for closing the toes, permits taking the stitches from the needles and positioning them as desired for stitching or other operations, thus eliminating the need for skilled manual labor formerly necessary in picking up the stitches.

TTD: 2-47

Special fabrics — IV 4

Automobile fabrics. Wool upholstery fabrics for motor cars. Anon. *Textile Mfr. 72,* 542 (Oct. 1946).

New standards for automobile fabrics, especially wool upholstery, are briefly noted and discussed. TTD: 2-47

Braider. New high-speed braiding machine. Anon. *Textile Recorder 64,* No. 763, 56-8 (Oct. 1946).

A new braider (Hobourn Aero Components, Ltd.), having a normal speed of 500 stitches per min. is described and illustrated. TTD: 2-47

German pile fabrics. Pile fabric production in Germany. Anon. *Textile Mfr. 72,* 544-5 (Oct. 1946).

From the Final Report No. 463 of the Field Information Agency, Technical, briefly noted, it is pointed out that the only novel features in the German pile fabric industry were 2 looms made by Güsken Loom Works at Dülken; one was a frieze and cut pile wire loom, and the other, a double shuttle plush loom. TTD: 2-47

Pile fabric. Geo. V. Uihlein (to M. J. Whittal Associates, Inc.). USP 2 410 764, Nov. 5, 1946.

A 3-tone effect is produced on a pile fabric with the use of but one color yarn as pile material. TTD: 2-47

Tufted fabric. Lyman Hamrick. USP 2 411 267, Nov. 19, 1946.

A multiple needle tufting machine, particularly for making tufted bedspreads, has a vertically reciprocable needle bar along with oscillating looper and cutter rods operating in a timed relation one to the other. Continuous lengths of bedspread material are tufted and later severed into the desired lengths. TTD: 2-47

Wig nets. Albert E. Hunter & Sidney F. Topott (to Byard Mfg. Co., Ltd.). USP 2 412 336, Dec. 10, 1946.

Double warp traverse nets for wigs, instead of being made by hand, are made on a twist lace machine of the Levers or Go-through type at a substantial saving in cost. TTD: 2-47

Wire fabric. Harry Crawshaw (to British Celanese, Ltd.). USP 2 412 562, Dec. 17, 1946.

A strong, light-weight fabric, suitable as an electrical conductor, particularly for intercepting radio waves, instead of being of an all-wire construction, is a plain weave structure (preferably) in which narrow bands of fine copper wires alternating with broad bands of textile yarns (in particular, cellulose acetate) are interwoven in both warp and weft and the textile yarns removed, except around the margins of the fabric, by locally applying acetone or other solvent to the fabric.

TTD: 2-47

Pile fabric. Frederick S. Perry & Jos. A. Huskinson. Can. P. 438 403, Dec. 10, 1946.

In the production of pile fabrics an improved method of spool-setting eliminates the necessity of consulting a colored diagram of the design, identification marks being placed upon the yarn receiving pegs on the creel table with corresponding marks on the records. TTD: 2-47

Fabric processing — IV 5

Drying. High frequency heating in textile industry. Kjell P. Lien, Chr. Michelsens Institutt. *Norsk Tekstiltidende 27,* 177-82 (Oct. 1946); *in Norwegian.*

The dielectric constant of dry cotton is about 6 lengthwise and 3 crosswise of the fiber. The dielectric constant increases rapidly as moisture is absorbed by the fiber, since the dielectric constant of water is 81. At 9% moisture the dielectric constants of the fiber are about 7 crosswise and 17 lengthwise. Other fiber dielectric constants are: dry rayon 2.1; nylon 3.6; Saran and Velon 3-5; finished fabrics about 5. Preliminary experiments revealed certain difficulties in the high frequency method of drying, but there are advantages to be attained, such as speed and uniformity of drying effect. TTD: 2-47

Fabric slitting machine. Harold W. Birch. USP 2 410 146, Oct. 29, 1946.

An improved fabric slitting machine slits tubular fabric lengthwise, at the same time opening and smoothing the resulting flat fabric and drying it. TTD: 2-47

Crepe fabric. Cyril M. Croft & Wm. J. Cramer, Jr. (to Celanese Corp. of Am.). USP 2 410 867, Nov. 12, 1946.

Instead of employing highly twisted yarns to achieve crepe effects in fabrics, creping is produced in fabrics containing cellulose acetate yarns by treatment in an aqueous boil-off containing a small amount of a lower aliphatic acid, such as formic, propionic, etc. (preferably about 2 vol. %). By this method exposure marks or uneven dyeings are reduced or eliminated. TTD: 2-47

Fabric processing. Percy Cook. USP 2 411 414, Nov. 19, 1946.

A traveling fabric web is subjected to twisting or un-

twisting operations in connection with finishing (such as in processes preparatory or subsequent to dyeing). The movement of the web, its twisting into rope-like form or its flattening out, is automatically controlled by a photoelectric cell when activated by an intercepted beam of light. TTD: 2-47

Marking fabrics. J. Armstrong (to Michaelis Hallenstein & Co. Proprietary, Ltd.). Australian P. 122 992, Dec. 19, 1946.

Fabric is marked with ink for cutting into predetermined lengths on an electrically driven machine. TTD: 2-47

Fabric drying. Paul L. & Fred T. Miller (to United Merchants & Mfrs., Inc.). Can. P. 438 681, Dec. 17, 1946.

Lengths of wet fabrics are dried in a continuous process by passing through radiant and convection heat chambers to effect vaporization of water from the fabric. TTD: 2-47

Fabric applications IV 6

Coated fabric. Plastic fabrics. E. C. Fetter, Chemical Engineering. *Chem. Eng. 54,* No. 2, 129 (Feb. 1947).

Fabric woven of Saran monofils has served many purposes in the chemical industry, including: filter cloth, strainers, conveyor belting, and screening. Uses are limited by its thermoplasticity and monofilament nature. Multifilament yarn still lacks adequate abrasion resistance.
LCL TTD: 2-47

Laminating fabric. Arthur Lyem (to Celanese Corp. of Am.). USP 2 409 703-4, Oct. 22, 1946; (to Camille Dreyfus) Can. P. 438 395-6, Dec. 3, 1946.

Laminated fabrics (such as for use in collars, cuffs, and the like) are made from thermoplastic (preferably cellulose acetate) and nonthermoplastic (e.g., cotton, linen, and the like) yarns plasticized with an aqueous dispersion or emulsion of triethyl citrate (preferably). Fabric so treated may be stored and aged without the danger of self-adhesion. TTD: 2-47

Impregnated fabric. Waldo Kellgren (to Minnesota Mining & Mfg. Co.). USP 2 410 078, Oct. 29, 1946.

A felted or woven porous fabric (of cloth or of paper) is impregnated with a composition of a fluxed blend of broken-down rubber, a compatible resin, and a thiuram polysulfide accelerator and an activator. Such unified fabrics are useful as adhesive tape backing, electrical tape, as a base for artificial leather, as a liner, etc. TTD: 2-47

Composite fabric. Beardsley Lawrence, Jr. (to Utility Co., Inc.). USP 2 410 884, Nov. 12, 1946.

A composite fabric material, suitable for bags and the like, consists of an open texture web of heterogeneously distributed strands (sisal, jute, etc.) and 1 or more webs of unspun fibers (especially cotton), the whole being impregnated with the same or different binders. TTD: 2-47

Fabric coating. Geo. M. Powell, III (to Carbide & Carbon Chemicals Corp.). USP 2 411 590, Nov. 26, 1946.

A flexible, water-resistant coating composition, particularly for metal surfaces but also for papers, cotton, wool, rayon, and other fabrics, is of the vinyl resin type, wherein the heat-reactive aminoplasts are so controlled as to improve the softening point and solvent resistance. TTD: 2-47

Impregnated fabric. E. J. P. Reynolds & P. C. Strong (to Tufnol, Ltd. & Jos. Lucas, Ltd.). Australian P. 122 978, Dec. 19, 1946.

Strips of woven fabric, impregnated with a synthetic resin, are tightly wound on a mandrel and then molded under heat and pressure into the form of a toothed wheel. TTD: 2-47

Resin-coated fabric. David J. Sullivan (to Can. Industries, Ltd.). Can. P. 438 031, Nov. 19, 1946.

By incorporating 0.5-5% dibutyl ammonium oleate into a vinyl resin composition a fabric coating is obtained which may be calendered onto a fabric base without sticking to the calender rolls. TTD: 2-47

Cushioning material. Walter Garner (to Lister & Co., Ltd.). Can. P. 438 137, Nov. 19, 1946.

Cushioning material, for use in seats, mattresses, and the like comprises 2 or more fabric layers, each layer containing in turn 2 resiliently woven fabrics, and the fabrics secured one to another, with an intervening space between each of 1/12" or more. TTD: 2-47

Laminate. Wm. Y. Jones. Can. P. 438 155, Nov. 26, 1946.

A laminated material is formed by impregnating a woven fabric core containing textile threads and high tensile steel wires with a synthetic resin adhesive, placing the wire-fabric core between similarly impregnated wood veneers, and bonding together under heat (160°C) and pressure (500 psi). TTD: 2-47

Laminate. Arthur Lyem (to Camille Dreyfus). Can. P. 438 394, Dec. 3, 1946.

A gas- and waterproof laminate comprises layers of fabric containing cotton and cellulose acetate yarns adhesively joined together under heat (100-180°C) and

pressure (45-300 psi) for 10-60 sec. between plasticized cellulose acetate films or foils. TTD: 2-47

Ethyl cellulose coating. Albert Mellor & Ralph J. Mann (to Henry Dreyfus). Can. P. 438 534, Dec. 10, 1946.

A woven fabric, of natural or regenerated cellulose, coated on one side with a plasticized ethyl cellulose and then bonded to an Al foil under heat and pressure, is of use in baloon construction. TTD: 2-47

Leather substitutes. S. Platt & W. O. Street (to Bury Felt Mfg. Co., Ltd.). Swed. P. 117 385, Jan. 4, 1945; *in Swedish.*

A base sheet of fibers capable of being crimped is coated with a plastic layer which penetrates the base sheet and crimps the fibers, giving an artificial leather with a pebbled effect. TTD: 2-47

Insulation. W. Brellochs (to Robt. Bosch GmbH). Swed. P. 117 617, Feb. 25, 1943; *in Swedish.*

Sheet insulation is made by passing several layers of woven fabric, e.g., glass fabric, through a solution of a hardenable synthetic resin which is subsequently hardened under pressure. In this assembly at least 2 layers of fabric are in direct contact with each other with their warp yarns parallel. TTD: 2-47

CHEMICAL RAW MATERIALS V

Plastics and elastomers V 1

Plastics. Pros and cons of plastics as alternatives to wovens. Anon. *Silk & Rayon 20,* 1073-4 (Sept. 1946).

A plastic coated cotton cloth and PVC sheeting are compared with conventional woven goods. There are printing difficulties still to be overcome because of stretching; except for black and white, ground shades cannot yet be matched accurately. TTD: 2-47

Plastics innersole. Walking on air. Arthur Grant. *Plastics 5,* No. 4, 62-3, 97, 99 (Oct. 1946).

A multi-plied plastics innersole, made of Saran, developed by Frank Dale for Army use, acts as a shoe ventilator, helping to reduce humidity inside shoes. The development and construction of this innersole is described and illustrated by photographs and diagrams. TTD: 2-47

Vinyl resin films. Ladies' apparel adopts plastics. Phil Buskirk. *Plastics 5,* No. 4, 58, 94 (Oct. 1946).

Dresses made entirely of vinyl resin films are briefly discussed. Much development work is still needed, particularly in rendering the films stable over a wider temperature range. TTD: 2-47

Cellulosic foil insulation. Thore M. Elfving. USP 2 406 815, Sept. 3, 1946.

Light, heat-insulating boards, of use as insulation in the construction of airplanes, automobiles, etc., are composed of a number of layers of (preferably) cellulose acetate foils with intermediate air spaces. Such foils, of a thickness between 0.06 and 0.1 mm, are formed with 2-25 wt.% of nonmetallic, heat-absorbing particles of such materials as graphite, gypsum, kaolin, etc., intermingled in them. TTD: 2-47

Cellulose ether film. Jas. A. Clark (to Sylvania Industrial Corp.). Can. P. 438 264, Nov. 26, 1946.

An open mesh fabric is coated on both surfaces with a continuous film of a cellulose ether to produce a reinforced film of increased tensile strength and tear resistance. TTD: 2-47

Moistureproof foils. L. V. E. Cheyney (to Wingfoot Corp.). Swed. P. 117 618, June 5, 1945; *in Swedish.*

Cellulose acetate foils are moistureproofed by treatment with a solution of an interpolymer of vinylidene chloride with 20-60% of vinyl chloride, in a solvent in which cellulose acetate is insoluble but capable of swelling. TTD: 2-47

Surface-active compounds V 2

Emulsions. Surface layer functions in emulsification, wetting and wettability. D. Dervichian & F. Lachampt. *Bull. Soc. chim. 1946,* 486-9 (July/Aug.); *in French.*

Study of the directly accessible properties of surface layers in emulsions is considered more fruitful than the theory of charges accumulating at surfaces in explaining emulsion stability, e.g., in oil-in-water emulsions. The new approach serves equally well for anionic, cationic and nonionizable emulsifiers. TTD: 2-47

Emulsions. Molecular structure and the functions of emulsifiers. A. Lachampt & D. Dervichian. *Bull. Soc. chim. 1946,* 491-4 (July/Aug.); *in French.*

Anionic and cationic emulsifiers depend mainly on large aliphatic chains (12 to 18C) for their surface activity. The nonionic emulsifiers are mostly formed from long chain acids (or alcohols) and polyhydric alcohols. TTD: 2-47

Emulsions. Structure and functions of frothing agents. F. Lachampt and D. Dervichian. *Bull. Soc. chim. 1946,* 495-7 (July/Aug.); *in French.*

Frothing and antifrothing agents have some complicated relations; sometimes an inhibitor even seems to promote frothing. Thus, Na abietate at certain concentrations promotes the emulsifying action of Na stearate, but Na

abietate is by no means an emulsifier. Froth behavior in a test tube differs greatly from the behavior in large scale dispersions, partly because of impurities in the latter. TTD: 2-47

Enzyme effect. Use of enzymes in preparing fabrics for dyeing. Anon. *Silk & Rayon 20,* 1112, 1115-17 (Sept. 1946).

Preparation of cotton-rayon blends for dyeing by use of starch-liquefiers (i.e., in scouring) is generally reviewed. Diastafor and Rapidase (malt and bacterial diastases, respectively) are among enzyme desizing preparations briefly discussed and compared. TTD: 2-47

Mercerizing assistant. Mercerizing assistant eliminates boil. Anon. *Textile World 96,* No. 9, 162 (Sept. 1946).

Dexter Chemical's Dypenol Sed is briefly described. TTD: 2-47

Surface-active compounds. Tewel Korman. Australian P. 122 766, Nov. 28, 1946.

A surface-active compound, particularly of use as a dyeing assistant but also as a dispersing or emulsifying agent, comprises essentially a mixture of sulfate or soda type "black liquor." TTD: 2-47

CHEMICAL PROCESSING VI

Finishing. Stages in finishing fabrics. II. Fulling. Borge K. Hansen, A/S Klem og Krüger. *Tids. Textilteknik 4,* 67-9 (Apr. 1946).

Methods and materials employed in alkaline, neutral, faintly acid, and strongly acid fulling baths are described. The causes and prevention of several defects are also discussed. TTD: 2-47

Finishing blends. Techniques standardized for finishing mixed fabrics. C. Norris Rabold, Textile World. *Textile World 96,* No. 9, 111-14 (Sept. 1946).

Because of increased knowledge of fiber properties, preparation, dyeing, and finishing of blends are becoming less of a problem. Mixed fabrics are divided into 4 groups (cotton and viscose, viscose and acetate, viscose and wool or Aralac, and viscose, acetate, and wool or Aralac); and finishing procedures for these 4 groups are tabularly outlined. TTD: 2-47

Permanent finishes. Textile auxiliaries derived from cellulose. Odd Waardal. *Norsk Tekstiltidende 27,* 213-5 (Dec. 1946); *in Norwegian.*

Uses of water-soluble and alkali-soluble cellulose derivatives (chiefly ethers) for laundryfast and permanent sizes or finishes is discussed, with particular attention to CAC (catalytically activated caustic) cellulose solu-

tions. These solutions contain 5-7% cellulose in 8-10% aqueous caustic soda. Their viscosities range from about 1 to 50 poises. Cellulose can be precipitated from CAC solutions with acid, salt solutions, hot water or even by heating above 70°. TTD: 2-47

COLOR VII

Bleaching VII 1

Bleaching. Bleaching wool yarn with hydrogen peroxide. Anon. *Norsk Tekstiltidende 28,* 6-7 (Jan. 1947); *in Norwegian.*

In the use of H_2O_2 for bleaching wool, it must be remembered that several metals are sharply catalytic in the decomposition of H_2O_2. Among them are Cu, Fe, and Mn; the commonest source of trouble in this respect is Fe. Temperature and alkalinity are factors which must be strictly controlled. Alkalinity is best controlled with Na phosphates; NH_3 is too volatile. The pH should be between 8 and 9; a convenient indicator for a first approximation is lyphan paper, which covers the entire pH range from 0 to 14. The preferred indicator for the final test is thymol blue (pH range 8-9.6); for precise control a potentiometer should be employed. TTD: 2-47

Dyeing VII 2

Dyeing wool blends. Synthetics complicate dyeing in wool-finishing plants. N. D. Marius. *Textile World 96,* No. 9, 115-16 (Sept. 1946).

Stock dyeing and piece dyeing of wool blends (with acetate, viscose, nylon, and Aralac) present problems which are briefly summarized. TTD: 2-47

Dye kettle covers. Jos. H. Higginson & Homer C. Riggs (to Riggs & Lombard, Inc.). USP 2 410 214, Oct. 29, 1946.

An improved safety cover for dye kettles is so designed with a sampling hole that it cannot be released or removed until the pressure has been dissipated. TTD: 2-47

Dyeing machine. Frederick Carter & Donald C. Taylor. USP 2 410 336, Oct. 29, 1946.

A dyeing machine comprising a row of vats and adapted for use in connection with a sewing machine, has a hinged lid in which is positioned a movable slide with thread guides and indexing device to facilitate changing thread colors as desired. This machine eliminates the need for a number of spools of differently colored thread. TTD: 2-47

Dyeing nylon. Georges de Niederhäusern (to Durand & Huguenin A. G.). USP 2 411 249, Nov. 19, 1946.

Gallocyanime dyes in leuco form are applied to nylon fibers from an alkaline vat and the dye developed in a chrome salt and acid bath, the dyeing having excellent light-fastness and good fastness to soaping and rubbing. TTD: 2-47

Cloth dyeing machine. Harry C. Wolfenden. USP 2 412 188, Dec. 3, 1946.

In an improved machine for dyeing cloth of various lengths the dyeing liquor, in continuous circulation, is kept in constant agitation by forcing preheated steam into it from the bottom causing a bubbling action in the dye liquor to keep it uniformly mixed. TTD: 2-47

Cellulose acetate dyeing. Christopher S. Argyle (to British Celanese, Ltd.). USP 2 412 312, Dec. 10, 1946.

Cellulose acetate and like materials are dyed with monoazo dyes having very good general fastness properties (i.e., to light, soap, acids, alkalies, and aqueous treatments). These dyes, which may be applied in aqueous dispersions or organic solvent solutions, have substantive affinity for cellulose esters or ethers but substantially no affinity for cellulose or animal fibers. TTD: 2-47

NEUESTE FORTSCHRITTE UND VERFAHREN IN DER CHEMISCHEN TECHNOLOGIE DER TEXTILFASERN. I. TEIL. (NEWEST ADVANCES AND METHODS IN THE CHEMICAL TECHNOLOGY OF TEXTILE FIBERS). PART I. NEUESTE FORTSCHRITTE IN DER ANWENDUNG DER FARBSTOFFE. I. BAND. (NEWEST ADVANCES IN THE APPLICATION OF DYES). VOL. I. Birkhäuser Verlag; Basel, Switzerland, 1946; 653 pp.; price F68.

Reviewed in *Norsk Tekstiltidende 28,* 16 (Jan. 1947). TTD: 2-47

Printing VII 3

Czech printing. Czech textile printing machinery. Anon. *Textile Mfr. 72,* 532-5 (Oct. 1946).

The handling and storing of printing rollers and mandrel assemblies are discussed, and Zimmer printing machines and driers briefly described and illustrated. TTD: 2-47

Printing thickener. Printing thickener resists oils, alkalis. Anon. *Textile World 96,* No. 9, 162 (Sept. 1946).

Ethulose (Geo. G. Johnston Co.) is a thickener for textile printing, having 3 viscosity ranges in 2% aqueous solution. TTD: 2-47

Printing viscose foil. Problems in printing viscose transparent wrapping. C. C. Downie. *Silk & Rayon 20,* 1106 (Sept. 1946).

Printing methods and inks for viscose wrapping are improved. Average rate of printing on viscose film is about 100 ft/min. while for other light materials the rate is up to 1000 ft/min. TTD: 2-47

PROOFING VIII

Shrinkproofing. Shrinkproofing resin exhausted from bath. I. G. Sanford. *Textile World 96,* No. 9, 137, 240, 244 (Sept. 1946).

Warwick Chemical's Durlana, a polymerized resin emulsion, is applied to knitted wool fabrics by 2 methods, no aftercuring being required by either method. TTD: 2-47

Flameproofed asbestos fabric. John L. Kurlychek (to U. S. Rubber Co.). USP 2 406 779, Sept. 3, 1946.

An asbestos fabric containing a minor proportion of flammable fibers, especially cotton, is rendered flame-resistant and water-repellent by treatment with a metal salt such as sodium stannate then with a solution of ammonium or aluminum sulfate (to precipitate the metal compounds on the fibers), and finally drying and heating above the fusion point of the deposited soap material. Fabric so treated may be dry cleaned without impairing the flame-resistant or water-repellent properties; the gain in fabric weight from treatment averages 10-15%. TTD: 2-47

Stabilizing fabric. Edw. C. Pfeffer, Jr., John A. Tweed & Jack Jarmak (to Cluett, Peabody & Co., Inc.). USP 2 409 894, Oct. 22, 1946.

A stabilized fabric suitable for shirting and other dress materials has spun rayon filling yarns interwoven with warp yarns consisting of a blend of rayon staple and cotton (40-60% rayon). Such fabric is then subjected to usual cotton finishing treatments and mechanically stabilized against shrinkage. TTD: 2-47

Moistureproof coating. Martin Salo (to Eastman Kodak Co.). USP 2 409 986, Oct. 22, 1946.

A moistureproofing composition for melt-coating cloth, paper, and the like, giving a hard, flexible and transparent surface, consists essentially, in one example, of: cellulose acetate butyrate (with a butyryl content of 50%) 66, castor oil 19, polyvinyl acetate 14, and paraffin wax 1%. TTD: 2-47

Flameproofing agent. Jos. F. Walker (to E. I. du Pont de Nemours & Co.). USP 2 411 396-7, Nov. 19, 1946.

Approximately equimolecular amounts of sodium cyanamide and formaldehyde are reacted in aqueous solution below 45°C and the resulting condensation product precipitated by adding strong acid to reduce the pH to

between 8 and 9 to give a heat-stable product that is useful particularly as a brightening agent in electroplating but also may be used as a flameproofing agent. TTD: 2-47

Shrinkproofing rayon fabrics. Ernst Weiss (to Heberlein Patent Corp.). USP 2 411 818, Nov. 26, 1946.

An improved shrink-resistant finish is imparted to fabrics containing regenerated cellulose, particularly viscose and cuprammonium rayons, by impregnation with 2-10% formaldehyde solution in the presence of acid catalysts (e.g., $ZnCl_2$) and colloidal stiffening agents (e.g., starch, gum Arabic, dextrin, etc.) at 70-160°C. TTD: 2-47

Water repellency. Winfrid Hentrich & Richard Hueter (to Heberlein Patent Corp.). USP 2 411 860, Dec. 3, 1946.

An inexpensive, stable, water-repellent treatment for textile materials such as wool, cotton, silk, rayon, hemp, etc., also for paper, leather, fur, and the like, consists of impregnating the material with higher molecular ketenes (containing at least 6 C atoms), such as butyl or cetyl ketenes, dissolved in an organic solvent such as CS_2, CCl_4, and the like, and then baking at 110-120°C. TTD: 2-47

Shrinkproofing wool. C. E. Woolcock (to G. H. Michell & Sons, Ltd.). Australian P. 122 740, Nov. 21, 1946.

To reduce shrinkage tendencies in wool, the fibers are treated with an alkali hypohalite or halite solution containing a small percentage of caustic alkali and then subjected to a mineral acid solution, the acid being neutralized later with a dilute sodium carbonate solution. TTD: 2-47

TESTING AND ANALYSIS IX

Fiber properties. Elastic properties of textile fibers. Pierre Chevenard & Georges Champetier, Société de Commentry-Fourchambault et Decazeville, Imphy; Institut de Chimie, Paris. *Bull. Soc. chim. 1946,* 464-74 (July/Aug.); *in French.*

A new microelastometer, useful for testing wire, has been adapted to fiber elastometry and used on wool, raw silk, nylon and ramie. Fiber elasticity is attributed to reversible extension of valence angles in macromolecular chains, and to permanent deformations caused by slippage of macromolecules over each other. TTD: 2-47

Hosiery standards. Better fit aim of hosiery measuring device. Warren P. Seem, U. S. Testing Co. *Textile World 96,* No. 9, 149, 151 (Sept. 1946).

A semiautomatic machine previously described (see

TTD: 6-46, p. 303) is further discussed. From 10,000 leg measurements made by USDA, it was found that 95% of mill production of hosiery can be accommodated in 3 width standards. TTD: 2-47

Textile testing. Textile testing in Germany. Herbert F. Schiefer, Nat'l Bur. of Standards, Lyman Fourt, Milton Harris Associates, and Richard T. Kropf, Belding-Heminway Corticelli. *ASTM Bull.* No. 144, 17-25 (Jan. 1947).

German apparatus and methods are described and 16 machines illustrated, among which are included: Schopper fiber strength tester, Frenzel-Hahn yarn tester, Jansen abrasion tester, Johannsen-Zweigle staple length tester, and Mecheels thermal insulation tester.
HAM TTD: 2-47

Viscometry. Determining cuprammonium viscosity of rayon pulp solutions. Alf af Ekenstam. *Svensk Papperstidning 50,* 1-8 (Jan. 15, 1947); *in German.*

From experimental determinations of cuprammonium viscosity of rayon pulps by the TAPPI method it appears that a determination of specific viscosity at infinite dilution is distinctly preferable to the TAPPI standard concentration of 10 g pulp per liter. This method gives more reliable results than the TAPPI method when viscometric data are translated into terms of molecular magnitude (degree of polymerization). TTD: 2-47

Testing tire cord. Gerald D. Mallory (to Wingfoot Corp.). USP 2 412 524, Dec. 10, 1946.

An improved type of fatigue test for tire cord, closely approximating actual wear conditions, enables the laboratory technician to forecast with reasonable accuracy the effective life under actual operating conditions. Such a method makes possible the selection of ideal specifications for tire cord construction to assure maximum tire mileage. TTD: 2-47

Testing rope. H. Hitchen (to Brit. Ropes, Ltd.). Australian P. 122 952, Dec. 12, 1946.

The tensile stresses of ropes of different diameters may be determined continuously, and the results recorded, on a tester that requires no recalibration for different diameters. TTD: 2-47

TEXTILE MILLS X

Buildings, machinery, power X 1

Bearing lubrication. Fitting and lubrication of ball and roller bearings. H. Sparke. *Silk & Rayon 20,* 1127-8 (Sept. 1946).

Brief notes on maintenance and repairs. TTD: 2-47

Boiler efficiency. Small boiler efficiency—grate and flue losses. Anon. *Silk & Rayon 20,* 1130 (Sept. 1946).

Fuel losses are more likely with smaller boilers than with the larger ones, and fluctuating loads are an additional complicating factor. Blowing exhaust steam into the ash pit and continuous recording of flue temperatures are practical suggestions for controlling fuel waste.

TTD: 2-47

Color and machinery. Color on machines increases working efficiency. Anon. *Silk & Rayon 20,* 1105 (Sept. 1946).

Proper use of color in factories relieves monotony and reduces eye strain, with a consequent increase in efficiency. Light, restful colors are found to be most attractive, psychologically, to workers. TTD: 2-47

Corrosion resistance. Corrosion resistance of steel and cast iron. A. W. Spitz, Am. Cyanamid Co. *Chem. Eng. 54,* No. 2, 135 (Feb. 1947).

The resistance of steel and cast iron to various corrosive agents is tabulated.

LCL TTD: 2-47

Electrification. Electrification of cotton industry. Anon. *Textile Recorder 64,* No. 763, 64 (Oct. 1946).

Increased production, improved working conditions, and fuel savings are considered possible through electrification. TTD: 2-47

Nylon hosiery plant. Munsingwear plant exclusively for seamless nylons. Anon. *Textile World 96,* No. 9, 151 (Sept. 1946).

The opening of a new million-dollar plant, housing 392 Scott & Williams knitting machines with a production capacity of 2 1/2 million pairs of 400-needle seamless nylons, is briefly noted. TTD: 2-47

Lighting and air X 2

Air conditioning. Air conditioning in textile mills—II. E. Howlett. *Textile Mfr. 72,* 521-3 (Oct. 1946).

The Sirocco system of dust removal and collection and pneumatic cleaning, especially in card rooms, is described and illustrated. TTD: 2-47

Lighting. Good lighting in textile factories. Anon. *Textile Recorder 64,* No. 763, 66 (Oct. 1946).

Recognition of proper lighting by the ordinary observer is sometimes difficult. A fluorescent lighting installation in a weaving shed is briefly described and illustrated.

TTD: 2-47

Shirt factory lighting. Modern lighting in shirt factory. Anon. *Textile Mfr. 72,* 525 (Oct. 1946).

A fluorescent lighting installation (Guisborough Shirt Factory), calculated to give an illumination value of 18 lumens per sq. ft. is illustrated and briefly discussed.

TTD: 2-47

Hazards; operations; efficiency X 4

Fire hazards. Electrical power plant—fire precautions. Anon. *Textile Mfr. 72,* 517-19 (Oct. 1946).

Fire risks are likely to be found in any electrical equipment however well installed. Main switchgears, in use 15 years or more , should be checked for suitability with the manufacturer and the electricity supplier. Oil in power transformers is a potential risk; a temperature operated device to give an audible warning if oil temperatures in transformers exceed 85°C are suggested as a safety feature. TTD: 2-47

Materials handling. Materials handling reveals mill engineering skill. Anon. *Textile World 96,* No. 9, 125, 127, 129 (Sept. 1946).

An illustrated description of assembly-line techniques used in 4 different mills. TTD: 2-47

Noise effects. Effects of noise on workers in textile factories. Anon. *Silk & Rayon 20,* 1126 (Sept. 1946).

From a N. Y. State Department of Labor study, briefly noted, it is found that deafness and nervous fatigue are important among the possible effects of noise on textile workers. The critical point for noises having harmful effects is thought to lie between 80 and 90 decibels.

TTD: 2-47

Process analysis. Work training in the British tricot knitting industry. C. A. Janicke. *Norsk Tekstiltidende 28,* 8-10 (Jan. 1947) ; *in Norwegian.*

Systematic process analysis has contributed greatly to increased production through shortening the training period for new employees, lowering the frequency of errors and defects in mill operations and products, and efficient utilization of machines. TTD: 2-47

TEXTILE RESEARCH XII

German finishing industry. German dyeing, printing, and finishing industry. Anon. *Textile Mfr. 72,* 536-41 (Oct. 1946).

Final Report No. 574 of the British Intelligence Objectives Subcommittee is summarized in some detail.

TTD: 2-47

German textile industry. German cotton, rayon and silk industries. Anon. *Textile Mfr. 72,* 507-12, 528 (Oct. 1946).

Final Report No. 574 of the British Intelligence Objectives Subcommittee is a general survey of the German textile industry. TTD: 2-47